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EXAMINER	
LO, SUZANNE	
ART UNIT	**PAPER NUMBER**
2128	

DATE MAILED: 09/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/666,209	EVANS ET AL.	
	Examiner	Art Unit	
	Suzanne Lo	2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 July 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *15-18* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14,19 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/25/04 7/30/04*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-14 and 19-20 have been presented for examination.

Election/Restrictions

2. Applicant's election without traverse of claims 1-14 and 19-20 in the reply filed on 07/12/06 is acknowledged.

PRIORITY

3. Acknowledgment is made of applicant's claim for priority to provisional application 60/411,839 filed on 09/18/02.

Information Disclosure Statement

4. The information disclosure statements (IDS) submitted on 10/25/04, and 07/30/04 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the Examiner has considered the IDS' as to the merits.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1-14 and 19-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Specifically, claims 1-14 are directed to a method with no tangible output. Does not enable the usefulness to be realized. Specifically, claims 19-20 are directed to functional descriptive material (software per se) with no tangible output.

Claim Objections

6. Claims 1 and 14 are objected to because of the following informalities:

Claim 1 should end with a period instead of a semicolon.

Claim 14 is missing a period.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. **Claim 1-14 and 19-20 are rejected** under 35 U.S.C. 102(a) as being clearly anticipated by **Optimal Technologies ("Operations Review of June 14, 2000 PG&E Bay Area System Events Using Aempfast Software").**

As per claim 1, Optimal is directed to a method for simulating an electric power network having a plurality of transmission-level buses and connected electrical elements and a plurality of distribution-level buses and connected electrical elements, the method comprising: integrating models of the distribution-level buses and connected electrical elements with models of the transmission-level buses and connected electrical elements into a single mathematical model **(page 13, Section 3, 5th paragraph)**; and simulating an operation of the electric power network with the single mathematical model **(page 13, Section 3, 5th paragraph)**;

As per claim 2, Optimal is directed to a method for analyzing an electric power network having a plurality of transmission-level buses and connected electrical elements and a plurality of distribution-level buses and connected electrical elements, the method comprising: integrating models of the distribution-level buses and connected electrical elements with models of the transmission-level buses and connected electrical elements into a single mathematical model **(page 13, Section 3, 5th paragraph)**; simulating an operation of the electric power network with the single mathematical model **(page 13, Section 3, 5th paragraph)**; and assessing under load flow analysis the condition and performance of the simulated electric power network **(page 13, Section 3, 1st paragraph)**.

As per claim 3, Optimal is directed to the method of claim 2, further comprising: integrating models of theoretical distribution-level real and reactive energy sources connected to one or more of the plurality of distribution-level buses into the single mathematical model **(page 13, Section 3, 1st paragraph)**; and observing impacts and effects across the simulated electric power network of the theoretical distribution-level real and reactive energy sources connected on one or more of the plurality of distribution-level buses **(page 13, Section 3, 2nd paragraph)**.

As per claim 4, Optimal is directed to the method of claim 2, further comprising: integrating models of theoretical alternative topologies of the distribution-level portion of the electrical power network into the single mathematical model **(page 13, Section 3, 5th paragraph)**; and observing impacts and effects across the simulated electrical power network of the alternative topologies of distribution-level portions of the network **(page 13, Section 3, 5th paragraph)**.

As per claim 5, Optimal is directed to the method of claim 2, further comprising: integrating additional models of theoretical distribution-level loads into the single mathematical model **(page 13, Section 3, 5th paragraph)**; and observing impacts and effects of load growth across the simulated electrical power network due to the addition of theoretical distribution-level loads **(page 13, Section 3, 5th paragraph)**.

As per claim 6, Optimal is directed to the method of claim 2, further comprising: integrating models of theoretical transmission-level real and reactive energy sources connected to one or more of the plurality of transmission-level buses into the single mathematical model **(page 13, Section 3, 1st and 5th paragraph)**; and observing impacts and effects across the simulated electric power network of the theoretical transmission-level real and reactive energy sources connected on one or more of the plurality of transmission-level buses **(page 13, Section 3, 5th paragraph)**.

As per claim 7, Optimal is directed to the method of claim 2, further comprising: integrating models of theoretical alternative topologies of the transmission-level portions of the electrical power network into the single mathematical model **(page 13, Section 3, 5th paragraph)**; and observing impacts and effects across the simulated electrical power network of the alternative topologies of transmission-level portions of the network **(page 13, Section 3, 5th paragraph)**.

As per claim 8, Optimal is directed to the method of claim 2, further comprising: integrating additional models of theoretical transmission-level loads into the single mathematical model **(page 13, Section 3, 5th paragraph)**; and observing impacts and effects of load growth across the simulated electrical power network due to the addition of theoretical transmission-level loads **(page 13, Section 3, 5th paragraph and page 14, 2nd paragraph)**.

As per claim 9, Optimal is directed to the method of claim 2, wherein the integrating models further comprises: representing actual distribution-level buses and elements having an actual voltage and an actual topology with corresponding models of buses and elements characterized, at least in part, by representations of the actual voltages and the actual topologies of the distribution-level buses and elements **(page 13, Section 3, 2nd paragraph)**.

As per claim 10, Optimal is directed to a method for analyzing performance of a modeled electric power network having a plurality of transmission-level buses and connected electrical elements and a plurality of distribution-level buses and connected electrical elements, the method comprising:

integrating the distribution-level buses and connected electrical elements with the transmission-level buses and connected electrical elements into a single mathematical model **(page 13, Section 3, 5th paragraph)**; assessing by load flow analysis a condition and a performance of the modeled electric power network **(page 15, Section 4.1.1)**; adding incremental real and reactive energy sources in locations of the modeled electric power network **(page 13, Section 3, 5th paragraph)**; assessing by load-flow analysis the condition and performance of the simulated electric power network with the added incremental real and reactive energy sources **(page 15, Section 4.1.1)**; determining whether the performance of the modeled electric power network is improved as a result of the added real and reactive energy sources **(page 16, Section 4.1.1)**; determining a set of added real and reactive energy sources that yields a greatest improvement in network performance **(page 13, Section 3, 5th paragraph)**; and characterizing the set of added real and reactive energy sources as specific distributed energy resources **(page 13, Section 3, 5th paragraph)**.

As per claim 11, Optimal is directed to the method of claim 10, further comprising, quantifying an improvement in performance of the modeled electric power network due to the set of added real and reactive energy sources **(page 13, Section 3, 5th paragraph)**.

As per claim 12, Optimal is directed to the method of claim 10, wherein adding incremental real and reactive energy sources further comprises: representing the energy sources with models of the energy sources characterized, at least in part, by values of corresponding electric power network actual bus location and actual voltage level **(page 13, Section 3, 2nd paragraph)**; adding to the mathematical model the models of the energy sources at one of the distribution-level buses and transmission-level buses, wherein the models of real energy sources are added subject to actual limits appropriate for dispatchable demand reductions available on the electric power network, and the real energy sources with reactive energy sources are added subject to actual limits appropriate for generation at load sites within the electric power network **(page 13, Section 3, 5th paragraph)**.

As per claim 13, Optimal is directed to the method of claim 10, wherein determining whether the performance of the modeled electric network is improved as a result of the addition of energy sources comprises: considering selected characteristics of a reduction of real power losses and reactive power losses, improvement in voltage profile, improvement in voltage stability, improvement of load-serving capability, and avoidance of additions of electric elements connected to the network that would otherwise be required **(page 19-20, Section 6.1.2 and Section 6.2)**.

As per claim 14, Optimal is directed to the method of claim 10, wherein characterizing the additions of real and reactive energy sources comprises: creating a plurality of mathematical models each having both distribution-level buses and connected electrical elements and transmission-level buses and connected electrical elements under a plurality of network operating conditions **(page 15, Section 4.1.1)**; determining the additions of models of real and reactive energy sources that achieve the greatest improvement in network performance of the modeled network under each set of operating conditions **(page 13, Section 3, 5th paragraph)**; characterizing each incremental addition of real or reactive energy sources as a discrete generation project, dispatchable demand response project, or capacitor bank project **(page 13, Section 3, 5th paragraph)**; and comparing results achieved under each set of operating conditions to derive model profiles for operation of each discrete added energy source model under each different set of operating conditions **(page 19-20, Section 6.1.2 and Section 6.2)**

As per claim 19, Optimal is directed to a computer readable medium comprising a computer program that when executed in a computer processor implements the steps of: integrating models of the distribution-level buses and connected electrical elements with models of the transmission-level buses and connected electrical elements into a single mathematical model **(page 13, Section 3, 5th paragraph)**; simulating an operation of the electric power network with the single mathematical model **(page 13, Section 3, 5th paragraph)**; and calculating the condition and performance of the simulated electric power network **(page 13, Section 3, 1st paragraph)**.

As per claim 20, Optimal is directed to the computer readable medium of claim 19, further comprising a computer program that when executed in a computer processor further implements the steps of: integrating models of theoretical distribution-level sources of real and reactive energy sources connected to one or more of the plurality of distribution-level buses into the single mathematical model **(page 13, Section 3, 1st paragraph)**; and calculating impacts and effects across the simulated electric power network of the theoretical distribution-level real and reactive energy sources connected on one or more the plurality of distribution-level buses **(page 13, Section 3, 2nd paragraph)**.

8. **Claim 1-2, 6, and 19 are rejected** under 35 U.S.C. 102(e) as being clearly anticipated by **Rehtanz et al. (U.S. Patent No. 7,096,175 B2), henceforth Rehtanz 75.**

As per claim 1, Rehtanz 75 is directed to a method for simulating an electric power network having a plurality of transmission-level buses and connected electrical elements and a plurality of distribution-level buses and connected electrical elements, the method comprising: integrating models of the distribution-level buses and connected electrical elements with models of the transmission-level buses and connected electrical elements into a single mathematical model **(column 3, lines 11-27)**; and simulating an operation of the electric power network with the single mathematical model **(column 4, lines 26-32)**;

As per claim 2, Rehtanz 75 is directed to a method for analyzing an electric power network having a plurality of transmission-level buses and connected electrical elements and a plurality of distribution-level buses and connected electrical elements, the method comprising: integrating models of the distribution-level buses and connected electrical elements with models of the transmission-level buses and connected electrical elements into a single mathematical model **(column 3, lines 11-27)**; simulating an operation of the electric power network with the single mathematical model **(column 4, lines 26-37)**;

and assessing under load flow analysis the condition and performance of the simulated electric power network **(column 4, lines 44-51)**.

As per claim 6, Rehtanz 75 is directed to the method of claim 2, further comprising: integrating models of theoretical transmission-level real and reactive energy sources connected to one or more of the plurality of transmission-level buses into the single mathematical model **(column 5, lines 42-48)**; and observing impacts and effects across the simulated electric power network of the theoretical transmission-level real and reactive energy sources connected on one or more of the plurality of transmission-level buses **(column 4, lines 33-37)**.

As per claim 19, Rehtanz 75 is directed to a computer readable medium comprising a computer program that when executed in a computer processor implements the steps of: integrating models of the distribution-level buses and connected electrical elements with models of the transmission-level buses and connected electrical elements into a single mathematical model **(column 3, lines 11-27)**; simulating an operation of the electric power network with the single mathematical model **(column 4, lines 26-37)**; and calculating the condition and performance of the simulated electric power network **(column 4, lines 44-51)**.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. **Claims 3-5, 7-14, and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Rehtanz et al. (U.S. Patent No. 7,096,175 B2), henceforth Rehtanz 75 in view of Rehtanz et al. (U.S. Patent No. 6,885,915 B2), henceforth Rehtanz 15.**

As per claim 3, Rehtanz 75 is directed to the method of claim 2, but fails to specifically disclose further comprising: integrating models of theoretical distribution-level real and reactive energy sources **(column 5, lines 42-48)** connected to one or more of the plurality of distribution-level buses into the single mathematical model; and observing impacts and effects across the simulated electric power network of the theoretical distribution-level real and reactive energy sources connected on one or more of the plurality of distribution-level buses.

Rehtanz 15 teaches integrating distribution-level real and reactive energy sources connected to distribution-level buses **(column 9, lines 44-58)** and observing impacts and effects of the sources **(column 9, lines 59-67)**. Rehtanz 75 and Rehtanz 15 are analogous art because they are both from the same field of endeavor, simulating an electric power network. It would have been obvious to an ordinary person skilled in the art at the time of the invention to combine the method of simulating an electric

power network of Rehtanz 75 with the method of modeling and adding in distribution-level and transmission-level energy sources in the model and observing the impacts and effects of the additions Rehtanz 15 in order to cover all possible combinations of an electric power network **(Rehtanz 15, column 9, lines 40-43)**.

As per claim 4, Rehtanz 75 is directed to the method of claim 2, but fails to specifically disclose further comprising: integrating models of theoretical alternative topologies of the distribution-level portion of the electrical power network into the single mathematical model; and observing impacts and effects across the simulated electrical power network of the alternative topologies of distribution-level portions of the network.

Rehtanz 15 teaches integrating distribution-level real and reactive energy sources connected to distribution-level buses **(column 9, lines 44-58)** and observing impacts and effects of the sources **(column 9, lines 59-67)**. Rehtanz 75 and Rehtanz 15 are analogous art because they are both from the same field of endeavor, simulating an electric power network. It would have been obvious to an ordinary person skilled in the art at the time of the invention to combine the method of simulating an electric power network of Rehtanz 75 with the method of modeling and adding in distribution-level and transmission-level energy sources in the model and observing the impacts and effects of the additions Rehtanz 15 in order to cover all possible combinations of an electric power network **(Rehtanz 15, column 9, lines 40-43)**.

As per claim 5, Rehtanz 75 is directed to the method of claim 2, but fails to specifically disclose further comprising: integrating additional models of theoretical distribution-level loads into the single mathematical model; and observing impacts and effects of load growth across the simulated electrical power network due to the addition of theoretical distribution-level loads.

Rehtanz 15 teaches integrating distribution-level real and reactive energy sources connected to distribution-level buses **(column 9, lines 44-58)** and observing impacts and effects of the sources

(column 9, lines 59-67). Rehtanz 75 and Rehtanz 15 are analogous art because they are both from the same field of endeavor, simulating an electric power network. It would have been obvious to an ordinary person skilled in the art at the time of the invention to combine the method of simulating an electric power network of Rehtanz 75 with the method of modeling and adding in distribution-level and transmission-level energy sources in the model and observing the impacts and effects of the additions Rehtanz 15 in order to cover all possible combinations of an electric power network **(Rehtanz 15, column 9, lines 40-43)**.

As per claim 7, Rehtanz 75 is directed to the method of claim 2, but fails to specifically disclose further comprising: integrating models of theoretical alternative topologies of the transmission-level portions of the electrical power network into the single mathematical model; and observing impacts and effects across the simulated electrical power network of the alternative topologies of transmission-level portions of the network.

Rehtanz 15 teaches integrating distribution-level real and reactive energy sources connected to transmission-level buses **(column 3, lines 39-47)** and observing impacts and effects of the sources **(column 9, lines 59-67)**. Rehtanz 75 and Rehtanz 15 are analogous art because they are both from the same field of endeavor, simulating an electric power network. It would have been obvious to an ordinary person skilled in the art at the time of the invention to combine the method of simulating an electric power network of Rehtanz 75 with the method of modeling and adding in distribution-level and transmission-level energy sources in the model and observing the impacts and effects of the additions Rehtanz 15 in order to cover all possible combinations of an electric power network **(Rehtanz 15, column 9, lines 40-43)**.

As per claim 8, Rehtanz 75 is directed to the method of claim 2, but fails to specifically disclose further comprising: integrating additional models of theoretical transmission-level loads into the single

mathematical model; and observing impacts and effects of load growth across the simulated electrical power network due to the addition of theoretical transmission-level loads.

Rehtanz 15 teaches integrating distribution-level real and reactive energy sources connected to transmission-level buses **(column 3, lines 39-47)** and observing impacts and effects of the sources **(column 9, lines 59-67)**. Rehtanz 75 and Rehtanz 15 are analogous art because they are both from the same field of endeavor, simulating an electric power network. It would have been obvious to an ordinary person skilled in the art at the time of the invention to combine the method of simulating an electric power network of Rehtanz 75 with the method of modeling and adding in distribution-level and transmission-level energy sources in the model and observing the impacts and effects of the additions Rehtanz 15 in order to cover all possible combinations of an electric power network **(Rehtanz 15, column 9, lines 40-43)**.

As per claim 9, Rehtanz 75 is directed to the method of claim 2, but fails to specifically disclose wherein the integrating models further comprises: representing actual distribution-level buses and elements having an actual voltage **(column 5, lines 42-48)** and an actual topology with corresponding models of buses and elements characterized, at least in part, by representations of the actual voltages and the actual topologies of the distribution-level buses and elements.

Rehtanz 15 teaches representing actual distribution-level buses and elements having an actual voltage and actual topology and characterized by representation of said buses and elements **(column 9, lines 59-67)**. Rehtanz 75 and Rehtanz 15 are analogous art because they are both from the same field of endeavor, simulating an electric power network. It would have been obvious to an ordinary person skilled in the art at the time of the invention to combine the method of simulating an electric power network of Rehtanz 75 with the method of modeling and adding in distribution-level and transmission-level energy sources in the model and observing the impacts and effects of the additions Rehtanz 15 in order to cover all possible combinations of an electric power network **(Rehtanz 15, column 9, lines 40-43)**.

As per claim 10, Rehtanz 75 is directed to a method for analyzing performance of a modeled electric power network having a plurality of transmission-level buses and connected electrical elements and a plurality of distribution-level buses and connected electrical elements, the method comprising: integrating the distribution-level buses and connected electrical elements with the transmission-level buses and connected electrical elements into a single mathematical model **(column 3, lines 11-27)**; assessing by load flow analysis a condition and a performance of the modeled electric power network **(column 9, lines 21-30)**; but fails to specifically disclose adding incremental real and reactive energy sources in locations of the modeled electric power network; assessing by load-flow analysis the condition and performance of the simulated electric power network with the added incremental real and reactive energy sources; determining whether the performance of the modeled electric power network is improved as a result of the added real and reactive energy sources; determining a set of added real and reactive energy sources that yields a greatest improvement in network performance; and characterizing the set of added real and reactive energy sources as specific distributed energy resources **(column 5, lines 42-48)**.

Rehtanz 15 teaches adding incremental real and reactive energy sources **(column 9, lines 44-58)**, assessing the condition and performance of the network with added sources **(column 9, lines 59-67)**, determining whether the performance is improved **(column 5, lines 34-65)**, determining a set that yields a greatest improvement **(column 5, lines 34-65)**, and characterizing the set of sources as specific distributed energy resources **(column 9, lines 59-67)**. Rehtanz 75 and Rehtanz 15 are analogous art because they are both from the same field of endeavor, simulating an electric power network. It would have been obvious to an ordinary person skilled in the art at the time of the invention to combine the method of simulating an electric power network of Rehtanz 75 with the method of modeling and adding in distribution-level and transmission-level energy sources in the model and observing the impacts and effects of the additions of Rehtanz 15 in order to cover all possible combinations of an electric power network **(Rehtanz 15, column 9, lines 40-43)**.

As per claim 11, the combination of Rehtanz 75 and Rehtanz 15 already discloses the method of claim 10, further comprising, quantifying an improvement in performance of the modeled electric power network due to the set of added real and reactive energy sources **(column 5, lines 42-49)**.

As per claim 12, the combination of Rehtanz 75 and Rehtanz 15 already discloses the method of claim 10, wherein adding incremental real and reactive energy sources further comprises: representing the energy sources with models of the energy sources characterized, at least in part, by values of corresponding electric power network actual bus location and actual voltage level **(Rehtanz 15, column 9, lines 59-67)**; adding to the mathematical model the models of the energy sources at one of the distribution-level buses and transmission-level buses, wherein the models of real energy sources are added subject to actual limits appropriate for dispatchable demand reductions available on the electric power network, and the real energy sources with reactive energy sources are added subject to actual limits appropriate for generation at load sites within the electric power network **(Rehtanz 15, column 9, lines 59-67)**.

As per claim 13, the combination of Rehtanz 75 and Rehtanz 15 already discloses the method of claim 10, wherein determining whether the performance of the modeled electric network is improved as a result of the addition of energy sources comprises: considering selected characteristics of a reduction of real power losses and reactive power losses, improvement in voltage profile, improvement in voltage stability, improvement of load-serving capability, and avoidance of additions of electric elements connected to the network that would otherwise be required **(Rehtanz 75, column 4, lines 26-33)**.

As per claim 14, the combination of Rehtanz 75 and Rehtanz 15 already discloses the method of claim 10, wherein characterizing the additions of real and reactive energy sources comprises: creating a plurality of mathematical models each having both distribution-level buses and connected electrical elements and transmission-level buses and connected electrical elements under a plurality of network operating conditions **(Rehtanz 75, column 3, lines 11-27 and column 4, lines 26-32)**; determining the

additions of models of real and reactive energy sources that achieve the greatest improvement in network performance of the modeled network under each set of operating conditions **(Rehtanz 15, column 5, lines 34-65)**; characterizing each incremental addition of real or reactive energy sources as a discrete generation project, dispatchable demand response project, or capacitor bank project **(Rehtanz 15, column 3, lines 2-7)**; and comparing results achieved under each set of operating conditions to derive model profiles for operation of each discrete added energy source model under each different set of operating conditions **(Rehtanz 15, column 5, lines 34-65)**

As per claim 20, Rehtanz 75 is directed to the computer readable medium of claim 19, but fails to specifically disclose further comprising a computer program that when executed in a computer processor further implements the steps of: integrating models of theoretical distribution-level sources of real and reactive energy sources connected to one or more of the plurality of distribution-level buses into the single mathematical model; and calculating impacts and effects across the simulated electric power network of the theoretical distribution-level real and reactive energy sources connected on one or more the plurality of distribution-level buses.

Rehtanz 15 teaches integrating distribution-level real and reactive energy sources connected to distribution-level buses **(column 9, lines 44-58)** and observing impacts and effects of the sources **(column 9, lines 59-67)**. Rehtanz 75 and Rehtanz 15 are analogous art because they are both from the same field of endeavor, simulating an electric power network. It would have been obvious to an ordinary person skilled in the art at the time of the invention to combine the method of simulating an electric power network of Rehtanz 75 with the method of modeling and adding in distribution-level and transmission-level energy sources in the model and observing the impacts and effects of the additions Rehtanz 15 in order to cover all possible combinations of an electric power network **(Rehtanz 15, column 9, lines 40-43)**.

Conclusion

10. The prior art made of record is not relied upon because it is cumulative to the applied rejection. These references include:

1. "Scalable Multi-Agent System for Real-Time Electric Power Management" published by Tolbert et al. in 2001.

2. "Load Following Functions Using Distributed Energy Resources" published by Li et al. in 2000.

3. U.S. Patent No. 6,549,880 B1 issued to Willoughby et al. on 04/15/03.

11. All Claims are rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Suzanne Lo whose telephone number is (571)272-5876. The examiner can normally be reached on M-F, 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on (571)272-2297. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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